ON THE SO-CALLED PRICKLE OR CLAW AT THE END OF THE TAIL OF THE LION AND OTHER FELINES. By Professor Turner.

Homer, in the 20th Book of the *Iliad*, when describing how the God-like son of Peleus rushed on the high-souled, warlike Æneas, compared him with a destructive lion—

> "As he lashes
> Fiercely his sinewy flanks with his tail, each side in succession
> Rousing himself for the fight."

Various authors and critics have supposed that the tip of the lion's tale is armed by a pointed sting or prickle, and that when the animal uses his tail in the manner so vividly described by the poet, he goads himself by its prickly sting prior to making a rush on his prey. Although comparative anatomists generally had taken no notice of any such structure, yet some support was given to the opinion formed of its existence by the authors referred to, by a statement made by Blumenbach in his work on Natural History, who said that he had seen something like a sting in the tail of a lion.

Some years ago this subject was investigated by Prof. Leydig, who wrote a short but interesting Essay, entitled *Ueber den Schwanz-stachel des Löwen*, in *Reichert und du Bois-Reymond's Archiv* for 1860. Leydig had examined in the previous winter the tail of a splendid lion which had died in the Zoological Garden at Stuttgart, and found, on turning on one side the hair which covered the end of the tail, a perfectly smooth and hairless papilla, *rundlich-kegelförmig* in shape, with a constricted base and an elevated apex. Leydig made a careful microscopic examination of this papilla, and came to the conclusion that it was not a special and peculiar organ, but merely a papilla of the skin endowed with vessels and nerves, so as in all probability to be an organ of sensibility like a touch organ at the point of the finger. Leydig also refers to a monograph with the title *Der Stachel des Löwen an dessen Schweifende*, published anonymously at Darmstadt in 1855, in which the author described the 'sting' or 'prickle' in the tail

of a recently dead lion, and in several stuffed specimens. This author also stated that the Puma, *Felis concolor*, possessed a similar structure, and that in *Bos urus*, some species of *Macropus*, and various genera of monkeys a nail-like structure had been observed at the end of the tail.

A few years ago Dr J. E. T. Aitchison, now British Commissioner in the Punjab, read a paper before the Royal Medical Society of Edinburgh, in which he stated that a claw-like appendage was to be found at the tip of the tail in the large felines, but doubts were expressed at the time as to the accuracy of his statements. Dr Aitchison has however availed himself of the opportunities afforded by his residence in the Punjab to secure the tails of two leopards, which he forwarded for examination early in the present year to my colleague, the Professor of Natural History. Owing to the absence of Dr Wyville Thomson, in charge of the Deep Sea Exploring Expedition, the specimens have been handed over to me.

On turning on one side the hairs at the tip of the tail of one of the specimens, I found a grey-coloured, hard, hairless conical structure, which projected for $\frac{2}{10}$ths of an inch beyond the roots of the nearest circle of hairs. It terminated in a sharp, prickly point, and possessed a diameter at its base, of not more than $\frac{1}{10}$th inch. It exhibited two circular constrictions, which gave me at first sight the impression that it might be formed by very minute terminal caudal vertebræ, but this impression was not borne out by more careful observation.

In the second specimen, the hard structure only projected $\frac{1}{10}$th inch beyond the roots of the nearest circle of hairs, and was slightly broader at the base than in the first specimen. It did not end in a sharp point, but had the form of a rounded, hairless, nipple-like projection. In neither instance could the structure be seen until the hairs were turned on one side, although in both cases their hardness and slight projection enabled me to feel them without difficulty.

I soaked the latter specimen in water so as to soften it, to enable me to examine its connections. I then carefully cut away the hairs in its immediate neighbourhood, and experienced no difficulty in seeing that it was nothing more than the hairless termination of the integument at the end of the

tail, which though hard and horny in the dried condition, was now soft and flexible, like the ordinary skin of the tail with which it was continuous.

I then scraped some soft whitish material off the surface, and examined it microscopically. It consisted of well-defined nucleated, and stratified squamous epidermal cells. A thin slice of the sub-epidermal tissue made perpendicularly to the surface, was then placed under the microscope. In it I recognised a number of small papillæ, having the structural characters and mode of arrangement of the papillæ of the cutis. There could be no doubt, from its structural characters, that the so-called claw or prickle at the end of the leopard's tail, as Leydig had already pointed out in the case of the lion, had the structure of skin, but instead of consisting, as in the lion, of a single large papilla, it possessed numerous small papillæ. Notwithstanding the poetical idea of its function as a sting, it is to be regarded therefore, not as a specially developed organ, but merely as a hairless part of the integument.

ON AN EDENTULOUS CONDITION OF THE SKULL OF THE GREY SEAL (*Halichoerus gryphus*). By PROFESSOR TURNER.

IN Vol. v. of this *Journal*, p. 270, I stated that specimens of the grey seal had recently been captured on the East coast of Scotland, and I referred to two young animals caught in the salmon nets near Montrose. Since those specimens were recorded, I have received the skull of another animal of that species from the same locality, which exhibited a remarkable defect in the development of the teeth.

The skull was from an animal about half-grown, and measured 8½ inches in length. The basi-cranial synchondroses were unossified, and the sutures between the bones of the face and those between the bones of the cranial vault were so loose, that many of the bones could, without much force, be separated